

FORMATION LOG

National Associated Oil Company
 #1 Earlywine
 SW SW NE, 15-27S-15W
 Pratt County, Kansas
 Elevation: 2067 Kelly Bushing
 2064 Derrick Floor
 2062 Ground

8 5/8" Surface Casing 355'
 Comm: 2-25-58
 Comp: 3-17-58

NOTE: All measurements are from the top of the kelly bushing.

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
0 - 65	No log	Drillers log 0-3700
65 - 215	Sand	
215 - 355	Sand and shale	
355 - 900	Red beds with shale streaks	
900 - 72	Shale and shells	
972 - 92	Anhydrite	Stone Carral - Electric log
992 - 1990	Shale and shells	
1990 - 2050	Shale and limestone	
2050 - 2445	Limestone and shale	
2445 - 2565	Shale with limestone streaks	
2565 - 2790	Limestone and shale	
2790 - 2905	Shale and shells	
2905 - 3210	Limestone and shale	
3210 - 60	Shale and shells	
3260 - 3360	Limestone and shale	
3360 - 3700	Limestone	Top Topeka 3455 Electric log
3700 - 04	Limestone, cream to light gray, subcrystalline, calcitic	Sample log 3700-T.D.
3704 - 25	Limestone, tan to cream, finely crystalline, oolitic. Some porosity	No show
3725 - 32	Limestone, buff to light gray, subcrystalline	
3732 - 35	Shale, gray	
3735 - 63	Limestone, tan to buff, finely sucrose, very oolitic. Some vugular porosity	No show
3763 - 79	Limestone as above, less porosity	No show

-2- Formation Log: National Associated Oil Co. #1 Earlywine.

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
3779 - 3787	Limestone, cream to buff, subcrystalline	
3787 - 3803	Limestone, tan, finely sucrose, some dolomitic good vugular porosity	No show
3803 - 09	Limestone, tan, very finely sucrose to subcrystalline	
3809 - 12	Shale, gray to black	
3812 - 24	Limestone as above	
3824 - 31	Shale, soft, black	Heebner
3831 - 34	Limestone blue-gray to brown-gray, subcrystalline	Leavenworth
3834 - 51	Shale, gray to green-gray	Snyderville
3851 - 63	Limestone, cream to gray, subcrystalline to finely crystalline. Streaks shale 3857-58	Toronto
3863 - 73	Shale, gray, silty to sandy	Douglas 3863-3985
3873 - 96	Limestone, green-gray to gray-tan, subcrystalline, crypto-fossiliferous. Some chert, tan to gray subvitreous opaque, fossiliferous. A few thin gray shale streaks	Amazonia
3896 - 3948	Shale gray to gray-green, sandy; considerable sand, calcareous, silty, fine, gray, micaceous	No show
3948 - 85	Shale, gray to green-gray to olive, traces of sand as above	
3985 - 91	Limestone, tan to brown, subcrystalline to dense, crinoidal	Brown Lansing
3991 - 4006	Shale, gray	
4006 - 12	Limestone, tan to gray, finely crystalline, mottled.	Top Lansing 4006
4012 - 14	Shale, gray	
4014 - 20	Limestone as above, trace vugular porosity	Trace stain. No odor or free oil
4020 - 22	Shale gray	
4022 - 49	Limestone, tan, subcrystalline, fossiliferous	
4049 - 52	Shale, gray	
4052 - 54	Limestone, buff, sucrose to subcrystalline. Spotted intercrystalline porosity	Trace stain. Possible trace odor.
4054 - 79	Limestone, finely crystalline, to medium crystalline. Calcitic to chalky	

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<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
4079 - 4086	Limestone tan, subcrystalline, shaly. Some chert, gray, opaque, figured	
4086 - 87	Shale, gray	
4087 - 4101	Limestone, cream, chalky, spotted pin point porosity 4090-4101	Trace stain. No odor or free oil
4101 - 09	Limestone, dark brown, dense	
4109 - 11	Shale gray and brown	
4111 - 22	Limestone, tan, subcrystalline. Chert, tan to gray, opaque, subvitreous	
4122 - 24	Shale, gray	
4124 - 29	Limestone as above, large increase in chert	
4129 - 46	Limestone and chert as above, much mottled, figured, chert	
4146 - 48	Shale, gray	
4148 - 51	Limestone and chert as above	
4151 - 53	Shale, dark gray	
4153 - 56	Limestone and chert as above	
4156 - 62	Limestone brown sucrose, very oolitic, good porosity	No show
4162 - 68	Limestone, tan, dense, some chert	
4168 - 72	Streaks gray shale and limestone as above	
4172 - 79	Limestone as above, very fossiliferous. Possible trace porosity	No show
4179 - 91	Limestone as above, less fossils no porosity	
4191 - 93	Shale, dark gray	
4193 - 4206	Limestone as above. Possible trace porosity 4197 to 4200	No show
4206 - 10	Limestone white chalky. Trace pin-point porosity	No show
4210 - 20	Limestone, tan, sucrose, good oolitic and vugular porosity	No show
4220 - 28	Limestone, light tan, dense	
4228 - 32	Limestone as above, some pin-point porosity	No show
4232 - 36	Limestone as above, no porosity	

-4- Formation Log: National Associated Oil Co. #1 Earlywine.

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
4236 - 4245	Limestone as above, fossiliferous. Chert gray opaque. Trace vugular porosity	No show
4245 - 61	Limestone as above, no porosity. Much white chalky limestone	
4261 - 62	Shale, green and gray	
4262 - 66	Limestone as above	
4266 - 70	Limestone as above, possibly some oolitic porosity	No show
4270 - 74	Limestone as above, no porosity	
4274 - 76	Limestone as above, trace large oolites. Scattered vugular porosity	Trace black to dark brown oil stain. No free oil no odor
4276 - 80	Streaks limestone as above and gray shale	
4280 - 82	Shale, soft, black	
4282 - 4307	Limestone, white chalky to tan dense	
4307 - 09	Shale, black, soft	
4309 - 13	Limestone, as above	
4313 - 15	Shale, gray and brown	
4315 - 21	Limestone, tan to brown, dense, crypto-fossiliferous	Base Kansas City 4321
4321 - 34	Shale, gray, green, brown, muddy to silty. Trace limestone, brown, dense, blocky	Pleasanton
4334 - 40	Limestone, light gray, brown, dense, some fusulinids	Checkerboard ?
4340 - 59	Shale, gray, black, gray-green, muddy. Streaks limestone dirty gray, earthy. Some buff finely sucrose dolomite	
4359 - 69	Limestone, dark brown to tan, dense	
4369 - 80	Shale, gray, gray-green, brown, muddy to silty	
4380 - 97	Limestone gray to tan, sub- crystalline to chalky to dense fossiliferous	
4397 - 99	Shale, dark gray and dark maroon	
4399 - 4407	Limestone as above. Trace brown translucent chert	
4407 - 11	Shale, dark gray. Shale,	

-5- Formation Log: National Associated Oil Co. #1 Earlywine.

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
	purple-maroon and green variegated	
4411 - 4425	Limestone as above. Chert, brown and citrine, translucent	
4425 - 28	Shale as above	
4428 - 48	Limestone, dark gray to tan. Some green-gray, earthy to dense. Chert, tan to gray, opaque to translucent	
4448 - 55	Shale as above	Top Cherokee 4448 ?
4455 - 60	Shale, dark gray, green and brown	
4460 - 68	Shale as above; some lighter gray shale	
4468 - 86	Shale as above with thin streaks Cherokee type sand, fine to medium, poorly sorted, dark brown to black, quartzitic	Brown and black stain. No sign of porosity, free oil or odor. Electric log does not show any sand body.
4486 - 91	Chert, white, gray, yellow, red, opaque weathered, partly de- vitrified	Top Mississippi 4486 Cored 4487-4517. See core record.
4491 - 4517	Chert	See core record. D.S.T. #1 4482-4517
4517 - 33	Chert, white, vitreous, opaque; to devitrified	Fair oil stain
4533 - 37	Shale, gray, gray-green, maroon	Top Kinderhook 4533
4537 - 43	Shale as above; some chert, brown, blue-gray, translucent. Some leached gray sandy shale with clear subrounded sand grains	
4543 - 53	Chert, white vitreous, china to lacy; chert amber translucent	No show D.S.T. #2 4517-45
4553 - 65	Shale, green, green-gray, dark gray, and brown; trace sand brown submedium. Trace dense, limestone	Trace stain in sand
4565 - 69	Sand, submedium, subangular to subround, well sorted. Some white and greenish white sand	Good stain Trace free oil
4569 - 80	Shale as above, some purple shale. Some red weathered limestone	

-6- Formation Log: National Associated Oil Co. #1 Earlywine.

<u>Depth</u>	<u>Formation Description</u>	<u>Remarks</u>
4580 - 4585	Sand, greenish white, silty. Some quartzitic sand	Spotted stain. Trace free oil
4585 - 94	Shale as above, increase in purple variegated shale. Increase in weathered lime- stone.	D.S.T. #3 4543-95
4594 - 4610	Limestone gray, tan, red, weathered, dense to finely crystalline; much chert, red, brown, white, opaque	Top Viola 4594
4610 - 30	Limestone, white chalky and white finely crystalline, some chert as above	
4630	Total depth	
	Ran electric log.	
	D. & A. 3-17-58	

Core Record: One core was taken on the #1 Earlywine.

Cored:	4487 - 4517	Recovered 29 1/2'.
	4487 - 89	Mississippian Conglomerate - dark green shale. Some red shale, nodular, varicolored. Many angular chert fragments. Trace free oil. Slight odor.
	4489 - 91	Mississippian Conglomerate - more chert, fractured and vugular. Slight odor and trace free oil.
	4491 - 91½	Solid chert, tan opaque - no show.
	4491½ - 94	Light green shale conglomerate with small angular chert fragments widely scattered. Slight odor. Slight increase in chert and odor from 4493-94.
	4494 - 4502	Chert, highly fractured. Chert gray opaque to devitrified with thin green shale intercalations. Slight odor and trace free oil.
	4502 - 03	Chert as above, tight - no oil and no odor.
	4503 - 05	Chert as above. Some odor and show of oil.

-7- Formation Log: National Associated Oil Co. #1 Earlywine.

Core Record Contd:

4505 - 4506 Chert, as above. Good odor. Slight show free oil.

4506 - 17 Chert as above, fair odor. Slight show of free oil in fractures and vugs.

Drill Stem Tests: Three drill stem tests were run on the #1 Earlywine:

#1 D.S. T. 4482 - 4517 - Mississippi 3-14-58.
Miller-Donelson - Double packers - jars.
Open 1 hour - good blow throughout, gas to the surface in 53 minutes, not enough to measure.
Recovered 150' gas cut mud. No trace of oil or water.
Initial Bottom Hole Pressure: Did not take.
Initial Flow Pressure: 45 p.s.i.
Final Flow Pressure: 62 p.s.i.
Final Bottom Hole Pressure: 1150 p.s.i. Shut in 30 minutes - still building very slowly.

#2 D.S.T. 4517 - 4545 - Mississippi 3-14-58.
Miller-Donelson - Double packers - jars.
Open 1 1/2 hours - weak blow for 65 minutes.
Recovered 65' mud - very slight trace of oil - no water.
Possibly a few feet of free gas on top of mud.
Initial Bottom Hole Pressure: 85 p.s.i. (30 min. - Still building very slowly.).
Initial Flow Pressure: 27 p.s.i.
Final Flow Pressure: 40 p.s.i.
Final Bottom Hole Pressure: 75 p.s.i. (30 min. - still building very slowly.).

#3 D.S.T. 4543 - 4595 - Kinderhook 3-15-58.
Johnston Testers - Single Packer - No jars.
Open 1 hour - very small blow for 30 minutes.
Recovered 17' mud - no oil, gas or water.
Initial Bottom Hole Pressure: Zero (30 min.).
Initial Flow Pressure: Zero.
Final Flow Pressure: Zero.
Final Bottom Hole Pressure: 85 p.s.i. (30 min.).

Samples examined and log compiled by Wendell S. Johns.

TIME LOG

National Associated Pet. Co.
 #1 Earlywine
 SW SW NE, 15-27S-15W
 Pratt County, Kansas
 Elevation: 2067 Kelly Bushing
 2064 Derrick Floor
 2062 Ground

NOTE: All measurements are from the top of the Kelly bushing.

<u>Depth</u>	<u>Time</u>	<u>Remarks</u>
<u>5' Time Log 1700 - 3700</u>		
1700 ~ 1750	5-5-5-5-5-5-5-5-5-5	
1750 ~ 1800	5-5-5-5-5-5-5-5-5-5	
1800 ~ 50	5-8-7-7-6-7-7-6-6-7	
1850 ~ 1900	18-18-9-10-6-5-4-4-4-4	
1900 ~ 50	4-4-3-5-6-6-5-5-5-7	Trip 1925 SEC. MAL
1950 ~ 2000	6-3-3-4-5-4-4-7-11-17	
2000 ~ 50	9-9-4-8-12-10-14-8-5-10	
2050 ~ 2100	11-10-14-15-15-12-13-12-11-13	
2100 ~ 50	12-13-17-14-14-14-12-14-12-9	
2150 ~ 2200	11-17-17-16-14-20-15-10-15-15	
2200 ~ 50	16-16-14-20-19-19-13-8-10-10	
2250 ~ 2300	11-14-12-10-12-22-18-16-14-10	
2300 ~ 50	16-26-15-25-10-10-12-10-13-12	Trip 2320 SEC. RT
2350 ~ 2400	12-16-10-13-11-13-16-21-8-6	
2400 ~ 50	17-19-19-20-22-14-15-5-9-11	
2450 ~ 2500	10-22-30-25-30-17-16-13-10-10	Trip 2475 ~ SEC
2500 ~ 50	12-9-8-8-13-12-10-8-7-7	
2550 ~ 2600	8-18-25-20-10-13-10-10-17-21	
2600 ~ 50	16-16-21-15-20-19-21-10-20-25	
2650 ~ 2700	30-13-12-5-10-17-15-17-16-21	Trip 2655 E6 ~ RT
2700 ~ 50	22-29-17-13-14-25-21-12-19-21	
2750 ~ 2800	23-21-21-21-21-15-15-12-23-32	
2800 ~ 50	33-15-17-18-15-16-12-12-18-12	Trip 2805 SEC
2850 ~ 2900	15-14-13-12-9-12-13-17-10-10	
2900 ~ 50	14-13-18-14-10-14-15-10-10-10	
2950 ~ 3000	11-12-18-12-10-11-20-19-13-10	
3000 ~ 50	9-8-7-10-11-8-11-22-22-14	
3050 ~ 3100	8-12-13-15-11-11-9-10-7-7	
3100 ~ 50	8-7-10-14-15-10-8-9-15-9	
3150 ~ 3200	10-16-15-19-20-10-20-20-20-20	

-2- Time Log: National Associated Pet. Co. #1 Earlywine.

Depth	Time	Remarks
3200 - 3250	25-35-14-18-21-25-32-30-30-39	Trip 3210 - W7
3250 - 3300	50-58-13-17-18-11-14-14-15-14	Trip 3260 OSC
3300 - 50	13-15-15-10-25-25-25-25-14-11	
3350 - 3400	25-14-19-15-20-14-18-13-14-15	
3400 - 50	15-25-23-22-35-30-29-35-35-35	
3450 - 3500	35-5-40-33-15-17-35-34-22-16	
3500 - 50	14-16-15-16-14-14-20-21-30-23	
3550 - 3600	20-17-22-23-7-16-16-15-20-18	Trip 3570 SEC. M4N
3600 - 50	9-13-14-13-21-24-22-17-11-9	
3650 - 3700	23-25-24-18-20-10-16-15-18-14	

1st Time Log from 3700 to T.D.

3700 - 10	3-4-3-4-3-3-2-3-3-3	
3710 - 20	4-3-4-4-3-4-3-4-4-4	
3720 - 30	4-3-3-3-3-4-5-6-4-4	
3730 - 40	6-6-4-4-3-5-5-4-3-3	
3740 - 50	4-4-3-2-4-6-4-4-4-3	
3750 - 60	2-4-4-3-3-3-3-3-3-2	
3760 - 70	3-3-2-3-3-4-3-4-3-3	
3770 - 80	4-4-5-4-4-5-4-4-5-6	
3780 - 90	7-7-5-5-6-5-5-4-3-2	
3790 - 3800	2-2-2-2-3-3-2-3-2-2	
3800 - 10	2-2-2-3-4-4-5-5-6-4	
3810 - 20	4-3-5-5-11-11-10-7-10-10	
3820 - 30	11-12-10-5-3-3-2-2-1-1	Heebner 3824-31
3830 - 40	1-12-10-13-7-4-4-2-4-4	
3840 - 50	4-3-5-4-4-4-4-4-4-4	
3850 - 60	4-8-10-13-8-10-8-5-5-6	Toronto 3851-63 Top Douglas 3863
3860 - 70	6-8-12-5-6-4-4-3-2-4	
3870 - 80	4-4-5-8-14-8-12-11-12-11	Amazonia 3873-96
3880 - 90	12-15-12-10-11-11-9-8-7-7	
3890 - 3900	7-7-6-7-8-8-9-4-3-3	
3900 - 10	2-3-3-4-4-4-4-3-3-3	Circ. 1 1/2 Hrs. @ 3903
3910 - 20	2-3-3-3-2-2-3-3-2-3	
3920 - 30	2-3-3-3-3-3-3-3-3-3	
3930 - 40	3-2-3-3-4-3-4-4-4-3	
3940 - 50	4-4-3-4-4-5-4-3-4-4	
3950 - 60	4-4-4-4-4-4-4-4-3-4	
3960 - 70	4-4-4-3-3-4-4-4-5-4	
3970 - 80	4-5-4-3-3-4-4-4-4-4	
3980 - 90	5-5-4-4-4-10-12-12-14-10	Top Brown Lansing 3985 Trip 3991 SEC M4L
3990 - 4000	10-7-3-6-6-5-5-5-5-5	

-3- Time Log: National Associated Pet. Co. #1 Earlywine.

<u>Depth</u>	<u>Time</u>	<u>Remarks</u>
4000 - 4010	5-5-5-4-3-3-4-5-8-7	Top Lansing 4006
4010 - 20	7-9-7-8-10-7-5-8-10-8	
4020 - 30	5-4-4-6-9-8-10-9-6-7	
4030 - 40	7-7-7-8-5-5-7-4-5-6	
4040 - 50	6-9-9-6-10-10-10-12-12-7	
4050 - 60	3-3-4-5-9-7-8-9-9-10	
4060 - 70	10-11-12-11-13-12-12-12-13-14	
4070 - 80	14-10-12-14-14-9-14-11-13-12	
4080 - 90	11-10-10-11-11-11-8-12-14-13	
4090 - 4100	9-9-7-9-8-7-9-9-8-6	Loosing mud 4098
4100 - 10	4-11-8-8-8-9-9-12-13-10	
4110 - 20	7-8-10-10-10-6-10-6-6-5	
4120 - 30	12-10-7-7-5-5-5-5-5-8	
4130 - 40	10-10-12-14-16-16-11-11-12-11	
4140 - 50	12-13-14-11-12-13-10-10-12-16	
4150 - 60	7-4-5-10-10-12-7-1- $\frac{1}{2}$ - $\frac{1}{2}$	
4160 - 70	$\frac{1}{2}$ - $\frac{1}{2}$ -9-18-15-14-18-15-12-14	Circ. 4163 - 1 Hr.
4170 - 80	17-10-10-10-8-8-8-8-9-14	
4180 - 90	12-15-18-15-16-7-7-10-12-15	Trip 4185 SEC. H7
4190 - 4200	15-10-4-10-11-12-13-6-6-7	
4200 - 10	8-9-9-8-8-8-7-7-6-7	
4210 - 20	7-6-6-5-7-4-4-3-5-6	
4220 - 30	8-10-13-12-15-14-12-10-8-7	Circ. 4220 - 1 1/2 Hrs.
4230 - 40	6-7-11-13-10-7-5-9-5-8	
4240 - 50	5-6-6-5-6-10-13-11-13-8	
4250 - 60	8-7-11-11-12-10-8-12-11-12	
4260 - 70	10-6-11-10-8-9-8-7-8-8	
4270 - 80	10-10-9-10-8-5-10-7-8-10	
4280 - 90	4-7-12-11-11-13-13-12-13-14	
4290 - 4300	12-14-12-15-14-13-11-13-10-11	
4300 - 10	13-10-13-16-16-14-13-11-9-13	
4310 - 20	13-15-13-8-6-11-14-14-16-16	
4320 - 30	15-10-11-10-14-13-12-11-10-9	Base Kansas City 4321
4330 - 40	8-8-9-7-10-12-16-12-11-11	
4340 - 50	7-6-6-5-6-7-6-6-5-6	
4350 - 60	5-6-5-6-6-5-6-5-6-9	
4360 - 70	11-13-14-8-6-9-8-7-8-5	Trip 4363 W7
4370 - 80	7-7-6-5-5-5-7-7-7-5	
4380 - 90	6-7-8-7-9-8-6-7-7-9	
4390 - 4400	10-9-8-8-9-8-8-7-7-9	
4400 - 10	9-8-10-10-13-10-12-11-11-8	
4410 - 20	9-10-10-11-12-12-13-11-10-11	
4420 - 30	12-13-10-10-10-9-9-9-12-13	
4430 - 40	14-12-14-13-12-12-14-14-13-13	
4440 - 40	10-13-13-14-14-13-13-14-11-8	Top Cherokee 4448

-4- Time Log: National Associated Pet. Co. #1 Earlywine.

<u>Depth</u>	<u>Time</u>	<u>Remarks</u>
4450 - 4460	10-9-10-10-9-8-7-6-6-6	
4460 - 70	6-5-7-6-5-5-6-7-10-9	
4470 - 80	9-7-9-10-10-10-8-9-9-9	
4480 - 90	10-10-9-9-7-7-5-14-21-30	Top Mississippi 4486 V.S.R. 4486-87 Circ. 4487 - 1 1/2 Hrs. Cored 4487-4517
4490 - 4500	35-40-27-35-20-18-20-29-30-27	
4500 - 10	30-39-32-32-35-40-34-37-41-35	
4510 - 20	24-32-55-54-46-58-55-5-4-3	D.S.T. #1 4482-4517 New W7 Bit @ 4517 S.R. 4528-29
4520 - 30	5-5-5-4-4-5-7-6-4-5	Top Kinderhook 4533
4530 - 40	6-10-7-7-7-8-8-12-16-22	Circ. 4545 - 1 1/2 Hrs.
4540 - 50	18-29-13-5-4-5-3-3-3-3	D.S.T. #2 4517-45 New C.P.-E.H.I. Bit @ 4545
4550 - 60	4-4-4-6-7-13-18-16-16-10	
4560 - 70	8-40-7-6-9-11-8-9-8-15	
4570 - 80	15-17-23-26-22-29-28-17-17-13	
4580 - 90	11-15-13-12-13-23-16-18-19-19	
4590 - 4600	20-29-24-24-32-8-8-14-10-14	Top Viola 4594 D.S.T. #3 4543-95 New C.P.-E.H.3 Bit @ 4595
4600 - 10	16-12-13-10-15-10-14-12-13-13	
4610 - 20	15-13-13-17-15-15-10-15-20-15	
4620 - 30	15-11-16-15-17-15-13-14-17-15	T.D. 4630 Circ. 4630 - 1 1/2 Hrs. Ran electric log. D. & A. 3-17-58

Time log condensed by Johns and Magathan.